

# Approaches of patients to health care before and during the COVID-19 pandemic

Approaches of patients to health care COVID-19 pandemic

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## Abstract

**Aim:** In the present study, the aim is to determine the approaches of patients to healthcare services before and during the pandemic by comparing the rates of outpatient admissions and hospitalizations to Selçuk University Medical Faculty Hospital throughout the present study.

**Material and Methods:** The present study is a retrospective, descriptive study. Patients diagnosed with COVID were admitted to Selçuk University Medical Faculty Hospital on March 5, 2020. During the pandemic, no patients diagnosed with COVID were admitted to the adult cardiology, neurology, internal medicine, psychiatry, emergency, general surgery and pediatric emergency, pediatric psychiatry, pediatrics and pediatric surgery polyclinics and services. Hence, these clinics were included in the study. In the study, patients' data who applied to the relevant clinics of Selçuk University Medical Faculty Hospital or were hospitalized in the relevant clinics, including the years 2019, 2020 and 2021, were examined as pre-pandemic (2019) and pandemic period (2020, 2021) quarterly. The parameters of the present study were the pre-pandemic and pandemic period. The data obtained in the study were evaluated with descriptive statistics (as frequency and percentage).

**Results:** In the first year of the pandemic, it was determined that both the number of outpatient clinic referrals and hospitalizations to the relevant clinics decreased significantly. Although the impact of epidemic diseases, emerging throughout human history has decreased, the risk they carry is systematically exaggerated, and the fears of the public fueled constantly by the media.

**Discussion:** Unfortunately, this fear in society was also reflected in hospital admissions. Therefore, to manage medical services correctly during pandemics, planned and organized psychosocial support services are needed to preserve the mental health of the community as well as to enable appropriate medical interventions.

## Keywords

Covid-19, Hospitalization Procedures, Impact of patients, Hospital Management

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## Introduction

Approximately eight months after the onset of the pandemic, as of November 9, 2020, the number of reported cases worldwide exceeded 50 million and the number of deaths exceeded 1,250,000 (available at: [www.who.int/emergencies/diseases/novel-coronavirus-2019](http://www.who.int/emergencies/diseases/novel-coronavirus-2019))

According WHO, a symptomatic COVID-19 case refers to COVID-19 virus infection from somebody with COVID-19 symptoms. According to the present data, the risk of contagion is highest at the onset of the symptoms compared to the rest of the disease course (available at: <https://apps.who.int/iris/handle/10665/331686>).

Data obtained from clinical and virological studies related to the collected biological samples of patients diagnosed with COVID-19, have revealed that the highest levels of COVID-19 virus in the upper respiratory system are seen at the beginning of the disease course [1].

In a highly globalized world, it is impossible for countries to remain indifferent to a negative event that will occur in any country of the world. The COVID-19 pandemic, leading to an epidemic, caused economic fluctuations world-wide and made countries to take harsh and urgent measures that would have been considered as illogical or even impossible at other times. In terms of raw material supply, commercial production, transportation, and mental health, COVID-19 epidemic has affected all humanity (available at: <https://cepr.org/publications/books-and-reports/economics-time-covid-19>). In this context, it is possible to say that the COVID-19 epidemic has an impact that significantly shapes human lifestyles and leaves permanent traces all over the world.

The risk of death from COVID-19 increases with age, and most of deaths obviously are witnessed especially in people over the age of 60 with chronic diseases [3]. Hence, the coronavirus epidemic has caused fear and panic all over the world, especially in countries with a high elderly population. The fear of coronavirus is considered to trigger various psycho-social problems due to the fact that elderly individuals are exposed to social isolation throughout the epidemic process [4]. However, the fear of being infected with the virus is not only limited to the elderly and individuals with chronic diseases. The fear of death had a negative impact on the psychology of all people, regardless of age and presence of chronic diseases.

Since the clinical course of COVID-19 could not be predicted exactly, uncertainty emerged, prompting people from all walks of life to fear and panic. To prevent the spread of the disease in the society, people have had to stay in their homes longer due to total curfew implemented or due to a curfew covering certain hours as part of the measure imposed by health administrators and scientific committees. The fear of becoming infected kept people from going out unless it was necessary, not going to hospitals to avoid infection, or even postpone their routine checkups if they have already had chronic health issues. It was to such an extent that patients who applied to the emergency units due to simple ailments such as headaches before the pandemic, ceased to do so during the pandemic course. In a study conducted by Chen et al., it was determined that admissions to the emergency department decreased by 40% during the SARS pandemic period [5].

In this study, it is very important to understand the psychological effects of this epidemic on people throughout a crisis affecting the whole world. We consider that the COVID-19 pandemic has caused a major change in hospital admissions and hospitalization rates. Throughout the present study, by comparing the rates of outpatient admissions and clinical hospitalizations coming to our medical center, the aim of the present study is to determine the approach of patients to health services before and during the pandemic.

## Material and Methods

The present descriptive study has a retrospective design. Permission for the present study was obtained from the Non-Invasive Clinical Research Ethics Committee of Selçuk University, Faculty of Medicine on November 23, 2021 with the number 21. In order to use the necessary data for the present study, the approval from the Scientific Research Platform of the Ministry of Health for studies on COVID-19 was also obtained. The first admission of patients diagnosed with COVID-19 at Selçuk University Medical Faculty Hospital was on March 5, 2020. During the pandemic, no patients diagnosed with COVID-19 were admitted to the adult cardiology, neurology, internal medicine, psychiatry, emergency, general surgery, pediatric emergency, pediatric psychiatry, pediatrics, and pediatric surgery polyclinics and services. Therefore, these clinics were included in the study.

In the study, the data of patients who applied to Selçuk University Medical Faculty Hospital, Adult Cardiology, Neurology, Internal Medicine, Psychiatry, Emergency, General Surgery and Pediatric Emergency, Pediatric Psychiatry, Pediatric Diseases and Pediatric Surgery Polyclinics or hospitalized in the relevant clinics in 2019, 2020 and 2021 were examined in quarterly periods as pre-pandemic (2019) and pandemic period (2020, 2021). In the study, only the relevant outpatient admission and hospitalization figures of the patients were examined disregarding any information about diagnosis or treatment modalities.

This study was carried out at our university hospital, which is a tertiary healthcare institution. Study parameters were evaluated in two periods: pre-pandemic and pandemic period.

The data obtained in the study were evaluated with descriptive statistics (frequency and percentage).

## Ethical Approval

Ethics Committee approval for the study was obtained.

## Results

Whereas the number of patients who applied to the polyclinics of our hospital included in the study was before the pandemic 464,630 in 2019, it was 251,142 in 2020, and 367,354 in 2021. The number of patients who applied to the outpatient clinics decreased by 45.95% in 2020 compared to 2019, and increased by 46.27% in 2021 compared to 2020.

When the numbers of outpatient applications of the clinics included in the study were examined for the January-February-March period, an increase in emergency service, cardiology, and neurology polyclinics in 2020 compared to 2019 was observed and for the remaining polyclinics, a decrease was evident. There was a decrease in all polyclinics in 2021 compared to 2020,

and the highest decrease was seen in the pediatric emergency department with 66.14%.

When examining the number of outpatient applications to the clinics included in the study during the April-May-June period, a decrease in all polyclinics in 2020 compared to 2019 was seen, with the highest decrease in pediatrics with 81.57%. However, in an increase was seen in all outpatient clinics in 2021 compared to 2020 with the highest increase in the pediatric surgery polyclinic with 237.69%.

When the number of outpatient applications of the clinics included in the study was examined for the July-August-September period, there was a decrease in all polyclinics in 2020 compared to 2019, with the highest decrease in pediatric surgery polyclinic with 69.65%. An increase was evident in all polyclinics in 2021 compared to 2020, with the highest increase in the pediatric emergency with 243.00%.

There was an increase in all polyclinics in 2021 compared to 2020, with the highest one in pediatric emergency with 380.59%. Figure 1 shows the number of outpatient visits and changes over the years in the three-month periods of the clinics included in the study.

The number of patients admitted to the clinics of our hospital included in the study was 24,726 in 2019, 15,450 in 2020, and 19,143 in 2021. Compared to 2019, the number of hospitalized patients decreased by 37.52 % in 2020 and increased in 2021 by 23.90 % compared to 2020.

When the number of patients hospitalized in the clinics included in the study was examined for the April-May-June period, there was a decrease in all clinics in 2020 compared to 2019, with the highest in the pediatric emergency room with 77.51%. Compared to 2020, there was a 6.38% decrease in pediatric emergencies in 2021 and an increase in other clinics, with the most in the neurology clinic, with 218.05%.

When the number of patients hospitalized in the clinics included in the study was examined for the October-November-December period, there was a decrease in all clinics in 2020 compared to 2019 with the highest decrease in the pediatric emergency polyclinic with 69.38%. Compared to 2020, an increase was

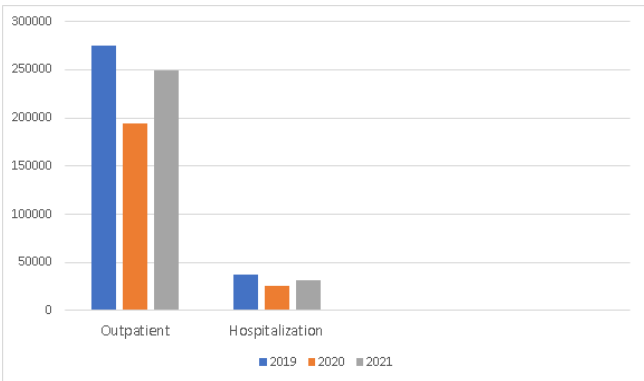


Figure 1. Distribution of outpatient clinic referrals and hospitalization according to the years.

Table 1. Changes in outpatient clinic referrals according to numbers and years in quarterly periods.

	January- February- March					April- May- June				
	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021
Emergency Dept.	36623	36866	19032	0,66	-48,38	37982	13581	25605	-64,24	88,54
Pediatric ER	10931	10541	3569	-3,57	-66,14	10200	1966	5376	-80,73	173,45
Pediatric Surgery	2708	1455	1272	-46,27	-12,58	2108	398	1344	-81,12	237,69
Pediatrics	20631	15504	9684	-24,85	-37,54	17470	3219	10269	-81,57	219,01
Pediatric Psychiatry	4021	3862	2243	-3,95	-41,92	3367	869	2457	-74,19	182,74
General Surgery	5354	5014	3778	-6,35	-24,65	4379	1647	3730	-62,39	126,47
Internal Medicine	24543	21171	15041	-13,74	-28,95	22393	8414	15190	-62,43	80,53
Cardiology	4427	4620	3506	4,36	-24,11	4143	1354	3260	-67,32	140,77
Neurology	4662	5179	3836	11,09	-25,93	4188	1826	4444	-56,4	143,37
Psychiatry	5419	4985	3564	-8,01	-28,51	5016	1828	3625	-63,56	98,3
	July- August- September					October- November- December				
	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021
Emergency Dept.	31005	19329	38104	-37,66	97,13	46579	17082	46154	-63,33	170,19
Pediatric ER	9744	3744	12842	-61,58	243	12667	3879	18642	-69,38	380,59
Pediatric Surgery	2158	655	1904	-69,65	190,69	1840	1099	2137	-40,27	94,45
Pediatrics	16707	5462	11960	-67,31	118,97	17678	8101	13624	-54,17	68,18
Pediatric Psychiatry	3159	1138	2317	-63,98	103,6	4466	1737	3348	-61,11	92,75
General Surgery	5001	2368	4180	-52,65	76,52	5024	3071	5541	-38,87	80,43
Internal Medicine	23331	10414	17233	-55,36	65,48	24786	12383	19864	-50,04	60,41
Cardiology	4098	1898	3584	-53,68	88,83	4678	3047	4281	-34,87	40,5
Neurology	5106	2296	5363	-55,03	133,58	5434	3306	6320	-39,16	91,17
Psychiatry	4740	2736	3998	-42,28	46,13	5871	3098	5133	-47,23	65,69

**Table 2.** Changes in hospitalizations according to numbers and years in quarterly periods.

January- February- March						April- May- June				
	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021
Emergency Dept.	445	351	230	-21,12	-34,47	355	144	182	-59,44	26,39
Pediatric ER	208	265	67	27,4	-74,72	209	47	44	-77,51	-6,38
Pediatric Surgery	423	255	282	-39,72	10,59	330	112	294	-66,06	162,5
Pediatrics	1407	1.198	935	-14,85	-21,95	1.265	826	1.094	-34,7	32,45
Pediatric Psychiatry*	0	0	0	0	0	0	0	0	0	0
General Surgery	981	1.078	807	9,89	-25,14	861	471	781	-45,3	65,82
Internal Medicine	1439	1.194	760	-17,03	-36,35	1.464	625	923	-57,31	47,68
Cardiology	760	700	592	-7,89	-15,43	666	349	493	-47,6	41,26
Neurology	552	538	455	-2,54	-15,43	554	205	652	-63	218,05
Psychiatry	102	73	60	-28,43	-17,81	85	29	42	-65,88	44,83

July- August- September						October- November- December				
	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021	2019	2020	2021	Changes between 2019-2020	Changes between 2020-2021
Emergency Dept.	389	370	261	-4,88	-29,46	472	287	295	-39,19	2,79
Pediatric ER	73	79	29	8,22	-63,29	111	67	45	-39,64	-32,84
Pediatric Surgery	416	176	343	-57,69	94,89	360	261	350	-27,5	34,1
Pediatrics	1.246	817	1.068	-34,43	30,72	1.335	798	1.237	-40,22	55,01
Pediatric Psychiatry*	0	0	0	0	0	0	0	0	0	0
General Surgery	1.130	581	912	-48,58	56,97	1.184	603	1.194	-49,07	98,01
Internal Medicine	1.560	665	1.048	-57,37	57,59	1.534	721	1.110	-53	53,95
Cardiology	694	406	579	-41,5	42,61	778	475	594	-38,95	25,05
Neurology	594	257	593	-56,73	130,74	561	329	661	-41,35	100,91
Psychiatry	91	52	63	-42,86	21,15	92	46	68	-50	47,83

\* There is no difference as there is no child mental health inpatient service.

seen in all clinics in 2021, with highest increase in the pediatric emergency clinic with 380.59%. Tables 1 and 2 present the number of hospitalizations in the clinics included in the study during the quarterly periods and the changes according to the years.

Discussion

Appearing first in Wuhan, China in December 2019, COVID-19 has spread all over the world, causing many deaths, and becoming an epidemic that has deeply affected the world [5]. The COVID-19 outbreak has had a negative impact on health infrastructure, transportation, accessibility, free movement, and medical needs and supplies throughout the globe [6]. Hereby, the present study presents hospital visits and hospitalization rates of the population requiring medical aid during the pandemic era. This group is among the vulnerable groups in terms of epidemic. It is necessary to be aware of the psychological, social, and economic impact of the patients who need to come to the hospital during and after the epidemic and to take action to encourage the visit hospitals. Receiving medical treatment from a masked healthcare worker unlike what the patients were used to, strict precautions, not knowing the nature of the virus, and the uncertainty of the course of the virus have all fueled the fear and anxiety of those in need of medical aid [7]. Paths of contamination, the importance of social distance, hand hygiene, the correct

mask use, and issues to be considered during the quarantine may be among the information to be presented to raise public awareness. It is necessary to raise awareness of patients and their relatives against false information on social media. The functioning of the health care sector and the determination of the factors affecting their functioning is an issue to be emphasized due to their vital importance for making prospective plans and for people to benefit from the health care sector with the best quality. In this regard, it is very important to evaluate the functioning of the health care sector, evaluate the factors that may affect the overall functioning, and maximize the capability of the sector [8, 9]. As a result of the overcrowding in the hospitals, many precautions were taken. Establishment of new hospitals, opening new clinics in existing hospitals, increasing the number of personnel, giving home treatment to some patients due to the presence of risks are some of them. Moreover, a 24-hour service provision was also established [10]. Among the purposes of the systems is the use of resources to obtain maximum efficiency. To enable this to happen, it is inevitable to know the potential number of patients who will benefit from health services and to make plans accordingly [4]. The number of outpatient clinic applications in hospitals decreased evidently in 2020 compared to 2019 during the March, April and May period, when the pandemic became an increasingly dire subject. The decrease in the number

of outpatient clinics was the smallest in March 2020. The underlying reason for this situation could be the fact that the first case in Turkey was seen on March 11, 2020, and the pandemic measures had been initiated from this date on. The decrease in the number of outpatient clinics was the highest in April. The reasons for this serious decline in April are that people did not go to hospitals due to the stress of being contaminated with the disease and the warning made by authorities not to go to hospitals unless the presence of severe health conditions. According to Ko et al, severe acute respiratory syndrome (SARS), a disease caused by a coronavirus associated with SARS, first appeared in China at the end of February 2003, and by May 2003, the epidemic was brought under control and the number of cases decreased leading to relief. At the same time, people applied to the hospital again due to various health problems in this period [11]. With the declaration of COVID-19 as a pandemic in March 2020, visits to hospitals and emergency services were not recommended to reduce the risk of contamination [12].

Restrictions and lifestyle changes due to the pandemic have led to a decrease in admissions to the pediatric emergency departments and to an increase in the need for intensive care [13]. Considering the decrease in hospital admissions and postponed care, children whose treatment was delayed were admitted to hospitals with greater severity than usual [14,15]. The increase in the number of cases during the pandemic process has led to an increase in restrictions. Hospital admissions decreased as governments implemented curfew measures [16]. Acute appendicitis is one of the most common indications for abdominal surgery in children. The progression of appendicitis to perforation is affected by hospitalization timing. During the COVID-19 pandemic period, many parents delayed their child's emergency referral for abdominal pain due to fear of being infected. Unfortunately, delaying the arrival of patients in need of surgery or those requiring follow-up in the hospitals during the pandemic has led to such serious complications. We consider that informing patients correctly and structuring the relevant healthcare plans consistently can reduce possible complications even during the pandemic.

In a study conducted in 3 different hospitals during the COVID-19 pandemic period in the USA, there were 18% more cases of perforated appendicitis compared to the previous 5 years. In addition, the length of hospital stay of children has also increased for this reason [17].

COVID-19 has affected the whole world, with the most impact on the health care system. In the present study, compared to the previous year, there was a significant decrease in the rate of admission and hospitalization to the Selçuk University Training and Research Hospital Emergency Service in April, May and June 2020 during the COVID-19 pandemic.

The continuation of the COVID-19 pandemic led to the gradual increase of patient numbers who applied to the emergency department in the later days of 2020; yet, compared to 2019, the number of patients who applied to the emergency room was quite low. In 2021, the number of patients who applied to the emergency department showed a high increase and reached almost 2019 levels. The underlying cause may be the fact that the patients have been able to overcome their unfounded fears, the increased public awareness of COVID-19 in the society, and

the momentum gained in vaccination studies for COVID-19 prevention.

It is important for individuals and the whole society to know how to cope with and manage the emotional and psychosocial effects of the uncertainty and crisis arising during the COVID-19 pandemic. When emotions such as fear and anxiety are spread throughout society, elements that reveal fear begin to rule people.

With the weakening of traditional solidarity mechanisms, the feeling of insecurity increases as the individual feels more and more lonely and unprotected in urban life. In the early days of the pandemic when the fear of death, insecurity, and incorrect information prevails, measures to be taken by healthcare authorities, interactive or directly addressed to the public, will prevent such negative events from occurring.

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#### Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

#### Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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#### Conflict of interest

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